

year, we much regret to have to record. Mrs. Visger was a woman of considerable attainments, with a good deal of masculinity in her character, both mental and physical. She had an absorbing interest in anything appertaining to Nature, and her mind was a storehouse of material acquired during her long life. Her powers of observation were great, and she used to the full in her literary work the excellent memory which Nature had given her, and the many opportunities which travel afforded her.

The real "Son of the Marshes" was understood to have been a working naturalist in Surrey, but it is probable that J. A. Owen's editorship went a good deal further than mere editing. One might say, in effect, that the books were practically written by her. They contained much interesting natural history gossip, following the Richard Jefferies style, but, as a rule, the information was quite unlocalised, and so lost much of its scientific value. The books followed rapidly on one another, and amongst them may be mentioned, "From Spring to Fall," "With the Woodlanders and by the Tide," "Annals of a Fishing Village," "Within an Hour of London Town," "Forest Tithes," and "On Surrey Hills."

Mrs. Visger was twice married, first in 1863, in which year she went to live in New Zealand. There she remained for five years, visiting Tahiti and the Sandwich Islands. She returned to reside in England in 1876, and married again in 1883, afterwards travelling considerably in Europe and in the Pacific. She finally returned to England in 1913. Beside a few books of travel, Mrs. Visger wrote, "Forest, Field, and Fell," "Birds in a Garden," "Birds Useful and Birds Harmful," and in collaboration with the late Prof. G. S. Boulger, "The Country Month by Month." Her books are not now read, perhaps, so much as they deserve to be.

PROF. H. BATTERMANN.

HANS BATTERMANN, who died in Blankenburg, Harz, on June 15, at the age of sixty-two, has left a record of much useful work in astronomy. In his youth he studied at Berlin University under Förster and Tietjen, gaining the degree of doctor in 1881 for a dissertation on aberration. After a short period at Hamburg Observatory he returned to Berlin as a member of the Commission which was appointed, under the direction of Auwers, for the discussion of the results obtained at the transits of Venus in 1874 and 1882. During this period he observed a long series of occultations of stars by the moon, utilising them to obtain a value of the moon's parallactic inequality, and hence of the solar parallax; the value that he found for the latter was 8.789", which is a good approximation to the accepted value; a still longer series of occultations, observed near the first and last quarters of the moon, should give a very accurate solar parallax. Battermann also conducted two other useful investigations at this time, one on the nature of the images in a heliometer, the other a triangulation of the Pleiades with that instrument. In 1888 he observed for nine months at the Göttingen Observatory; on his return to Berlin he took the chief part in the star observations with the transit circle, and in their reduction to a Catalogue, including the discussion of proper motions.

In 1904 Battermann was appointed professor and director of the University Observatory at Königsberg; he continued there his researches on proper motion, and also observed further occultations with the 13-inch refractor. He was compelled to resign his professorship in 1919 through a complete breakdown in health, brought on by overwork; he retired to Blankenburg, where he died three years later, after much suffering.

A. C. D. C.

Current Topics and Events.

DR. M. O. FORSTER, who, since November 1918, has been director of the Salters' Institute of Industrial Chemistry, is relinquishing this post at the end of next month, having been appointed director of the Indian Institute of Science, Bangalore. He expects to take up his new duties early in November.

A NEW biological station for the study of limnological problems and for research on the development of fresh-water fishes has been established at the Lake of Trasimeno, in Umbria. The University of Perugia has assumed responsibility, and the director of the station is the professor of physiology, Dr. Osvaldo Polimanti. Further details of the equipment are promised at an early date.

THE excavations at the Meare Lake Village, near Glastonbury (Shapwick and Ashcott are the nearest stations), will be resumed by the Somersetshire Archaeological and Natural History Society on August 25, and continued until September 9 (exclusive of the filling-in). As in previous years, the work will be under the personal direction of Dr. Arthur Bulleid and Mr. H. St. George Gray. The antiquities discovered in past years at Meare are exhibited in the

Somerset County Museum at the society's headquarters, Taunton Castle, while those from the Glastonbury Lake Village (described in two royal quarto volumes) are to be seen, for the most part, in the Museum at Glastonbury. Donations are needed and will gladly be received by Mr. St. George Gray, at the Somerset County Museum, Taunton.

ONE of the oldest organised scientific societies, the "Schweizerische Naturforschende Gesellschaft," is holding its 103rd Annual Meeting at Berne on August 24-27. In addition to the usual business of the society, there will be scientific discussions, and a number of important papers will be read, including: "The Trend of Modern Physics," Dr. C. E. Guye (Geneva); "The Nature of the so-called General Neuroses," Prof. Sahli (Berne); "The Aar Massif—an Example of Alpine Granitic Intrusion," Dr. E. Hugi (Berne); "The Natural Form of Substances as a Physical Problem," Dr. V. Kohlschütter (Berne); "Experimental Genetics in regard to the Law of Variation" (illustrated by lantern slides), Dr. A. Pictet (Geneva); and "Investigations into the Physiology of Alpine Plants," Dr. G. Senn (Bâle). Banquets will be held at the end of each session, and there will be concerts

and other social functions. Those wishing to take part in the meetings may do so on payment of a fee of thirty francs, payable to the "Postcheckkonto No. III. 1546" of the "Naturforschende Gesellschaft," Berne.

AMONG the Civil List Pensions granted during the year ended March 31, 1922, and announced in Parliamentary Paper, No. 137, just published, we notice the following:—Lady Fletcher, in recognition of the services rendered by her late husband (Sir Lazarus Fletcher) to science, and in consideration of her circumstances, 60*l.*; Dr. Francis Warner, in recognition of the services rendered by him in his investigations into the mental and physical condition of defective children, and in consideration of his circumstances, 100*l.*; Sir George Greenhill, F.R.S., in recognition of his services to science and his ballistic work, and in consideration of his circumstances, 125*l.*; Mrs. J. M. Miller, in recognition of the services rendered by her late husband (Dr. N. H. J. Miller) to agricultural science, and in consideration of her circumstances, 50*l.*; Mrs. Alice Mabel Ussher, in recognition of the services rendered by her late husband (Mr. W. A. E. Ussher) to geological science, and in consideration of her circumstances, 50*l.*; Mrs. Agnes E. Walker, in recognition of the services rendered by her late husband (Mr. George W. Walker, F.R.S.) to science, and in consideration of her circumstances, 75*l.*; The Misses Ellen C., Gertrude M., Alice B., Katherine E. and Mary L. Woodward, in recognition of the services rendered by their late father (Dr. Henry Woodward, F.R.S.) to geological science, and in consideration of their circumstances, 125*l.*

ON August 19, 1822, a hundred years ago, died Jean Baptiste Joseph Delambre, the illustrious astronomer and permanent secretary to the Paris Academy of Sciences. Born in Amiens, September 19, 1749, Delambre became a student in Paris and first gained a livelihood as a translator and a tutor. A friendship with Lalande led him to astronomy, and among his earlier work was the formation of tables of Herschel's newly-discovered planet Uranus. With the revolution came the proposal for a rational system of weights and measures, and on the formation of a commission to carry the scheme through, Delambre and Méchain were instructed to measure an arc of meridian from Dunkirk to Barcelona. Often interrupted, this great work occupied the years 1792 to 1799, while the results were given fully in Delambre's "Base du Système métrique decimal," published in 1806–10. Various appointments fell to Delambre; in 1807 he succeeded Lalande at the Collège de France, and as secretary to the Academy of Sciences he wrote many *éloges* and reports. His later years were largely devoted to the writing of his great history of astronomy, five volumes of which appeared during 1817–1821, while the final volume was published five years after Delambre's death. Delambre is buried in the Père la Chaise Cemetery.

MR. H. G. SMITH, formerly assistant curator and economic chemist at the Sydney Technological Museum, has been awarded the David Syme Research prize of the University of Melbourne. The prize, which consists of a medal and a sum of 100*l.*, is awarded for the best thesis based upon original scientific research connected with the material and industrial development of Australia. Mr. Smith is the leading authority upon the chemistry of the essential oils of the eucalypts. Working largely in collaboration with his botanical colleague, Mr. R. T. Baker, and as a result of nearly thirty years' assiduous research, he has been able to establish a remarkable correlation between chemical and botanical characteristics in this complex genus, and an evolutionary theory accounting for the formation of the various species of Eucalyptus has been advanced by him and Mr. Baker. Since his retirement from the Sydney Technological Museum, Mr. Smith, although in his seventieth year, has been actively engaged in further work in the Organic Chemistry Department of the University of Sydney, in association with Prof. Read.

IN accordance with its policy of promoting scientific investigation in Australia, the Australian National Research Council has decided to publish a quarterly catalogue, comprising a list of titles, authors, and journals of publication of scientific research papers of Australian origin, whether appearing in Australian or other journals. The catalogue, which will also contain a brief abstract supplied by the author of each paper concerned, will be entitled *Australian Science Abstracts*, and will be under the control of an editorial committee representing the various branches of science corresponding with the sectional arrangement. The personnel of the editorial committee is as follows: Prof. H. G. Chapman, Dr. L. A. Cotton, Mr. J. J. Fletcher, Mr. A. Gibson, Prof. J. Read, Prof. O. U. Vonwiller, Mr. G. A. Waterhouse, and Prof. R. D. Watt, with Dr. A. B. Walkom as editor-in-chief. The catalogue will be published in Sydney; it will be issued free of charge to members and associates of the Australian National Research Council, and a number of copies will be used for exchange purposes. It is hoped to issue the first number this month.

EXCEPTIONALLY heavy rains fell in many parts of England during the August Bank-holiday week-end and the following days, causing not only discomfort but doing also a large amount of damage in several districts. The primary cause of the rainfall was the arrival of a cyclonic disturbance from the Atlantic, the core or centre of the storm being situated near the Land's End at 8 A.M. on Sunday, August 6, reaching Portland by 2 o'clock in the afternoon, and passing over the Isle of Wight at 7 o'clock in the evening. It was a few miles to the north-west of London at 8 A.M. on August 7, and passed over Cambridge at 2 o'clock in the afternoon, reaching Spurn Head by 7 o'clock in the evening. The disturbance had arrived near Flamborough Head at 2 A.M. on August 8 and afterwards passed away over the North Sea, but the arrival of another disturbance occasioned a renewal

of the rains. During the 12 hours ending 6 P.M. on August 6 the fall of rain at Bournemouth was about $1\frac{3}{4}$ inches. At Harrogate the aggregate rainfall was nearly 5 inches for the three days ending Wednesday, August 9. Nottingham registered 3.4 inches of rain for the 24 hours ending 7 P.M. on August 7. Sheffield experienced exceptionally heavy rain on this date, which occasioned floods, and there was a renewal of the floods in the late evening of the following day. At Leeds, between the morning of August 7 and mid-day of August 9 the rainfall measured 3.44 inches, which is said to be the highest ever recorded in the city. At Melton Mowbray the rain measured 4.83 inches for the 24 hours ending 9 P.M. on August 7, and at Doncaster the measurement was 4.08 inches between midnight on August 6 and 6.30 P.M. on August 7. Violent thunderstorms occurred generally in the south and east of England, and in London on the afternoon of August 9 a storm was accompanied by a heavy fall of hail. At Hampstead the hailstones remained unmelted on the ground for several hours.

SWATOW, situated on the China coast at the mouth of the river Han and in the Formosa Strait, was visited by a typhoon of terrific violence during the night of August 2-3; the storm lasted about six hours, starting at 10 P.M. on August 2. The pre-war population of Swatow is given as 60,000, and an estimate, made a week after the disaster, of the loss

of life at Swatow and the surrounding district is said to be probably 50,000. Six other towns besides Swatow are said to be destroyed. The water rose quite suddenly, partly submerging houses and buildings. Trees were uprooted and telegraph poles blown down. Sampans and native craft were blown hundreds of yards inshore, most of the occupants being drowned, and many large vessels were driven ashore. More than 2000 vessels annually enter the port. The occurrence and characteristics of typhoons in the China Seas have long been studied and are comparatively well understood. The recent storm was probably one of the type shown in the "Barometer Manual for the use of Seamen" published by the Meteorological Office. The period of occurrence is from June to September. These storms usually originate in the neighbourhood of the Philippines and travel northward or north-eastward, striking or skirting the China coast and afterwards passing near to Korea and Japan. The typhoons are commonly warned from Manila or Hong-kong, but the warning can, at the best, only lessen the amount of damage. The Hong-kong Government has greatly aided in relieving the distress occasioned, and the British have been helped in this by the Japanese. In the Backergunge, Bay of Bengal, cyclone, in October 1876, the loss of life by drowning was estimated at 100,000, and the deaths afterwards from disease directly due to the inundation added another 100,000 to the number.

Our Astronomical Column.

CONJUNCTION OF VENUS AND JUPITER.—A conjunction of these brilliant planets will occur on August 26 at 18h. G.M.T., when Venus will be $2^{\circ} 29'$ south of Jupiter. Venus will set at 8h. 11m., and Jupiter will set at 8h. 24m. G.M.T. Sunset occurs at 7h. G.M.T., so that the two planets will set about $1\frac{1}{4}$ hours after the sun. Twilight will be very strong in the western sky just before the setting of the two planets, and in order to observe them it will be necessary to look from a position which commands a clear open view of the western sky near the horizon.

On August 25 Venus and Jupiter will be in conjunction with the moon soon after midnight following the date mentioned, and on August 30 will be in conjunction with Mars in the evening. The western sky during the last week of August will be extremely interesting, the new moon being there and Venus, Jupiter, and Saturn also visible in the same region.

THE ORBITAL DISTANCES OF SATELLITES AND MINOR PLANETS.—Prof. G. Armellini in 1918 published a law of planetary distances in the form 1.53^n , where n is given successive integral values from -2 for Mercury to +8 for Neptune. The two integers +2 and +3 are assigned to the asteroids, while +6 is left unused. It can scarcely be claimed that (except in the case of Neptune) it shows great superiority over the law of Bode. However, in a further paper (*Scientia*, August 1922) he notes that his colleague Prof. Burgatti has applied the law to the satellite systems of Jupiter, Saturn, and Uranus, the formulæ

being 1.80^n , 1.34^n , and 1.31^n respectively. In the case of the Jupiter family the indices are -3, -2, -1, 0, +1 for V and the four bright satellites; +2, +3 are unused, +4 is assigned to the two satellites VI, VII, while +5, +6 are given to VIII, IX respectively. The author erroneously gives a distance to IX half as great again as that of VIII. The two in reality form a twin pair like VI, VII. Since the law gives no explanation of vacant spaces or of pairs of satellites, its claims to rest on a physical basis are not convincing.

The remainder of the paper deals with the asteroid orbits. The gaps at the distances where the periods are half and one-third of Jupiter's are not ascribed to the direct action of that planet, but to some primitive agency which determined both its distance and theirs. It is, indeed, likely that the asteroids will play an important part in future discussions on the cosmogony of the solar system.

Prof. Armellini cites an interesting point about planet 434 Hungaria. Its distance from the sun, 1.95, is the precise distance at which Leverrier stated that enormous perturbations in inclination would develop, causing oscillations of 53° . Charlier, however, pointed out that Leverrier had included only first-order perturbations; he estimated that the inclusion of higher terms would diminish the oscillation to 17° or less. Finally, Prof. Armellini himself has effected the complete integration of the expressions, using elliptic functions, and finds that the oscillation of the inclination is only $3\frac{1}{2}^{\circ}$, a quantity of the same order as that of the major planets.